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FAIRS Subject Report

Grain and Oilseed Standards

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Report Highlights:
On July 3, 2008, China notified the WTO of the National Standard GB 1353—2007 "National Standard for Corn" as TBT/N/CHN/403 and National Standard GB-1532-2006 "National Standard for Soybeans" as TBT/N/CHN/402. These standards specify the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of corn and soybeans. GB/T 5497 Inspection of Grain and Oilseeds - Methods for Determination of Moisture Content is referenced in that standard and published here as a reference in reviewing TBT/N/CHN/402 and 403. This report is an UNOFFICIAL translation of GB/T 5497.

Includes PSD Changes: No
Includes Trade Matrix: No
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Executive Summary: On July 3, 2008, China notified the WTO of the National Standard GB 1353—2007 "National Standard for Corn" (Replacing GB 1353-1999) as TBT/N/CHN/403. This standard specifies the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of corn. This standard also applies to testing, evaluation and identification of the quality of corn. The date for submission of final comments to the WTO is September 3, 2008. The proposed date of adoption is 90 days after circulation by the WTO Secretariat (October 3, 2008) and the proposed date of entry into force is 6 months after adoption (January 3, 2009). This is notified as GAIN Report CH8069.

On July 3, 2008, China notified the WTO of the National Standard GB-1532-2006 "National Standard for Soybeans" (Replacing GB 1352-1986) as TBT/N/CHN/402. This standard specifies the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of soybeans. This standard also applies to testing, evaluation and identification of the quality of commercial soybeans. The date for submission of final comments to the WTO is September 3, 2008. The proposed date of adoption is 90 days after circulation by the WTO Secretariat (October 3, 2008) and the proposed date of entry into force is 6 months after adoption (January 3, 2009). This is notified as GAIN Report CH8066.

One of the measures that is referenced in the proposed National Standard is GB/T 5497 Inspection of Grain and Oilseeds - Methods for Determination of Moisture Content. This standard has not been notified to the WTO. This National Standard, along with other standards published in GAIN Reports CH8097-CH8105, is being published so that GB 1353—2007 "National Standard for Corn" TBT/N/CHN/403 and GB-1532-2006 "National Standard for Soybeans" TBT/N/CHN/402 can be reviewed with this additional pertinent information.

Thanks go to the United States Soybean Export Council – International Marketing and the U.S. Grains Council for their support in translating this measure.

BEGIN TRANSLATION

National Standard of the People's Republic of China

GB 5497-85

Inspection of Grain and Oilseeds - Methods for Determination of Moisture Content

Issued on Nov. 2, 1985 Implemented on July 1, 1986

This standard is applicable to determination of moisture content of commodity grain and oilseeds.

1 Method of Constant Weight at 105?

1.1 Instruments and Apparatus;

1.1.1 Electrothermostat;

1.1.2 Analytical Balance: Sensitivity 0.001g;

1.1.3 Laboratory electric disintegrator or the hand-operated disintegrator;

1.1.4 Corn sieve;

1.1.5 Desiccator reserved with the allochroic silica gel. (The allochroic silica gel can not be used any more once it appears red. It can be reused after dried at a temperature of 130-140? and all of it turn into blue).

1.1.6 Aluminium case: inner diameter: 4.5 cm, height: 2.0 cm.

1.2 Preparation of Test Sample

Collect certain amount of sample from the average sample to prepare the test sample in a way as specified in the table below:

Table of Method for Test Sample Preparation

Type of Grain	Sample Reduction Weight: g	Preparation Method
Granular cereal and finished product of grain	30~50	Remove impurities and the mineral substances of bulk sample, with the breaking fineness passing through 1.5mm round-hole sieve not less than 90%
Soybean	30~50	Remove impurities and the mineral substances of bulk sample, with the breaking fineness passing through 2.0mm round-hole sieve not less than 90%
Peanut kernel, tung-seed kernel etc	50 approx.	Take cleaned kernels and cut them into slices or pieces less than 0.5mm with a hand-operated slicer or knife
Peanut in shell, tea seed, tung seed, castor bean, etc	100 approx.	Take cleaned kernels (seeds), let them shelled and weighed to calculate the hull-kernel ratio; grind or pulverize the hull, and cut the kernel into slices.
Cotton seed, sunflower seeds etc	30 approx.	Take cleaned seeds, slice or scrape the seeds in mortar
Rapeseed, sesame etc	30 approx.	The whole granule sample with the bulk impurities removed
Sweet potato slices	100 approx.	Take cleaned slices and shatter them, with the fineness the same as that of the granular grain
Shredded sweet potato, Sweet potato strip	100 approx.	Take cleaned shredded sweet potato or strip and shatter them, with the fineness the same as that of the granular grain

1.3 Operation Method

1.3.1 Fixing temperature: Put the mercury ball of the thermometer in the oven about 2.5 cm away from the baking net and adjust the temperature of the oven and fix it at 105±2? .

1.3.2 Drying the aluminum case: Take a clean and empty aluminum case, put it onto the baking net below the mercury ball of the thermometer in the oven. Baking the case for 30 minutes to 1 hour, take it out and place it into the desiccator to cool it to the room temperature and take it out for weighing. Subsequently, bake it for another 30 minutes until the weight difference between the first and second baking is no more than 0.005g, which is regarded as the constant weight.

1.3.3 Weighing up the test sample: Weigh up the test sample of about 3g with the aluminum case that has been baked to constant temperature (W_0). As for the unhulled oilseeds, weigh up the test sample based on the kernel-hull ratio, alternatively, weight up test sample of kernels and hulls respectively. (W_1, accurate to ±0.001 g.)

1.3.4 Baking the test sample: Sleeve the aluminum case cover on the case bottom and place it into the baking net around the thermometer in the oven. Bake the case at a temperature of 105? for 3 h (90 minutes for oilseeds), take it out and cover it. Put it into the desiccator to cool it to the room temperature and take it out for weighing. Then re-bake the case according to the above-mentioned method, and take it out for cooling and weighing every 30 minutes until the weight difference between the first and second baking is no more than 0.005g. If the weight after the latter baking is larger than that of the former, the weight after the former baking will be taken as the calculation basis (W_2).

1.4 Calculation of Results

The moisture content of grains and oilseeds is calculated as formula (1):

$$\text{The moisture content (\%)} = \frac{W_1 - W_2}{W_1 - W_0} \times 100 \quad \text{.....(1)}$$

Where:

W_0 - The weight of the aluminum case, g;

W_1 - The weight of the test sample before baking and the aluminum case, g;

W_2 - The weight of the test sample after baking and the aluminum case, g;

As for the unhulled oilseeds whose moisture content of kernels and hulls are determined respectively, the moisture content of such unhulled oilseeds is calculated as formula (2):

$$\text{The moisture content (\%)} = M_1 \times A + M_2 \times (1-A) \quad \text{..... ..... (2)}$$

Where:

M_1 - The percentage of the moisture content of the kernel, %;

M_2 - The percentage of the moisture content of the hull, %;

A - The percentage of the gross output of the kernel, %;

The allowable deviation of the dual test results shall not exceed 0.2%, calculate the mean value of the dual test results and take the first digit after the decimal point as the final determination result. Where other methods are adopted to determine the moisture content, the allowable deviation between the result obtained therefrom and that obtained in the aforesaid method shall not exceed 0.5%.

2 Method for Drying under Fixed Temperature and Fixed Time

2.1 Instruments and Apparatus: same as 1.1.

2.2 Test Sample Preparation: same as 1.2.

2.3 Calculation of Test Sample Dosage: By this method, test sample of certain quantity will be utilized. First, figure out the bottom area of the aluminum case, and then calculate the test sample dosage on the basis of 0.126g per sq. cm (the bottom area × 0.126). Where an aluminum case with the diameter of 4.5cm is used, the test sample dosage will be 2g. Where an aluminum case with the diameter of 5.5cm is used, the test sample dosage will be 3g.

2.4 Operation Method

Weigh up certain quantity of test sample with the aluminum case that has been baked to constant weight (accurate to ±0.001g). When the temperature of the oven rises to 135-145? , put the aluminum case filled with test sample onto the baking net around the thermometer and increase the temperature of the oven to 130±2? in 5 mines, simultaneously, begin to time, bake the case for 40 minutes, place it into the desiccator for cooing and take it out for weighing.

2.5 Calculation of Results

The moisture content calculation by method of drying under fixed temperature and fixed time is the same as that of 1.4.

3 Method of Drying with Tunnel Oven

Where the method of drying with tunnel oven is adopted to determine the moisture content of the cereal, bake the cereal for 20 minutes at a temperature of 160±2? . To determinate the moisture content of oilseeds and beans, bake them for 30 minutes at a temperature of 130±2? .

3.1 Instruments and Apparatus

3.1.1 Tunnel Oven

3.1.2 Stopwatch

3.2 Test Sample Preparation: same as 1.2.

3.3 Operation Method

3.3.1 Fixing Temperature: Put the instruments flat on the ground. Insert the thermometer into the baking room and place the mercury ball 1cm away from the mouth of the bake case. Turn on the power supply to fix the temperature.

3.3.2 Weighing the Sample with the Bake Case: Push three clean bake cases into the oven and push another 10 minutes later, at this moment one of the three bake cases which have been pushed into previously will be squeezed out of the tunnel. Put this baked case into the scale pan on the oven, add a 10g poise and adjust the screw of the quadrant scale till the indicator points to the zero point of the scale. Take off the poise and put the prepared test sample into the bake case. Increase or reduce the dosage of test sample until the indicator points to the zero point. Place the test samples which have been weighed into the bake case evenly, push them into the drying room and close the left door and begin to time simultaneously.

3.3.3 Drying the Test Sample: Where the method of baking for 20 minutes at 160? is adopted, push a bake case with test sample into the drying room every 6 minutes and 40s. Where the method of baking for 30 minutes at 130? is adopted, push a bake case with test sample into the drying room every 10 minutes .When the fourth test sample case is pushed into, the first test sample case has been baked completely and will be pushed out to the scale pan. Pull down the fixed-tray of the scale pointer and observe the numerical value shown by the indicator, which is regarded as the percentage of the moisture content determined.

The allowable deviation of the dual test results shall not exceed 0.5%.

4 Twice-baking Method

Twice-baking method is adopted when the moisture content of grains is over 18% and that of the soybean and the sweet potato slices is over 14% and that of oilseeds is over 13%.

4.1 First Baking: Weigh up 20g full granule test sample (W_1, accurate to ±0.001g) and place it into the bake box with a diameter of 10cm or 15cm and a height of 2cm and have it laid open. Bake grains at a temperature of 105? and soybean & oilseeds at a temperature of 70? for 30-40 minutes and then take them out. Cool them to the constant weight naturally (the weight difference shall be no more than 0.005g) and which is regarded as the test sample weight (W_1) after the first baking.

4.2 Second Baking: The test sample preparation and operation method are same with those in 1.2 and 1.3.

4.3 Calculation of Results

Where the twice-baking method is adopted, the moisture content will be calculated as formula (3).

$$\text{The moisture content (\%)} = \frac{W \bullet W_2 - W_1 \bullet W_3}{W \bullet W_2} \times 100 \quad \text{.....(3)}$$

Where:

W - The weight of the test sample before the first baking, g;

W_1 - The weight of the test sample after the first baking, g;

W_2 - The weight of the test sample before the second baking, g;

W_3 - The weight of the test sample after the second baking, g;

The allowable deviation of the dual test results shall not exceed 0.2%, calculate the mean value of the dual test results and take the first digit after the decimal point as the measured result.

Additional Explanation:

This standard was proposed by the Ministry of Commerce of the People's Republic of China.

This standard was drafted by the Grain Storage and Transport Bureau, the Ministry of Commerce.

Major draftsmen of this standard are Gao Xiuwu, Yang Haoran, Wu Yanxia, and Lu Guifen.